

# COMMONWEALTH OF AUSTRALIA

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Family Name	
Given Names	
Student Number	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>
Teaching Period	Semester 2, 2016

FINAL EXAMINATION	DURATION
PHA211 – Fundamentals of Pharmaceutics	
	Reading Time: 10 minutes
	Writing Time: 120 minutes

### INSTRUCTIONS TO CANDIDATES

Please ensure that your Name and Student Number are indicated clearly on your Answer Booklets and at the top of the multiple choice answer sheet provided. Start a new booklet for each section.

There are **3** (THREE) sections for this paper:

Section A: Time: **40** minutes. Answer **40** (FORTY) of **40** (FORTY) Multiple Choice questions, **40** Marks

Section B: Time: **40** minutes. Answer **2** (TWO) of **3** (THREE) Short Answer questions, **30** Marks

Section C: Time: **40** minutes. Answer **2** (TWO) of **3** (THREE) Formulations & Calculations questions, **30** Marks

### EXAM CONDITIONS

**You may begin writing from the commencement of the examination session.** The reading time indicated above is provided as a guide only.

This is a CLOSED BOOK examination

Any non-programmable calculator is permitted

No handwritten notes are permitted

Hard copy, unannotated English translation dictionary only

ADDITIONAL AUTHORISED MATERIALS	EXAMINATION MATERIALS TO BE SUPPLIED
No additional printed material is permitted	2 x 16 Page Book 1 x Scrap Paper Faculty/School Multiple Choice Answer Sheet

**THIS EXAMINATION IS PRINTED  
DOUBLE-SIDED.**

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BLANK.**

## **Section A**

### **Multiple Choice Questions**

**Total Number of Marks for this section: /40**

This section should be answered on the Multiple Choice Answer Sheet provided. Please ensure that your name and student number have been written on the answer sheet and place inside the completed answer Booklet for submission at the end of the examination.

One Mark for each question. Suggested Time allocation for Section A: 40 mins

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***END of Section A***

## Section B

### Short Answer Questions

Total Number of Marks for this section: /30

Answer 2 (TWO) of the 3 (THREE) Short Answer Questions. Start a new answer booklet for this section. Please ensure that your name and student number have been written on the answer booklet for submission at the end of the examination.

15 (FIFTEEN) marks for each question. Suggested Time allocation for Section B: 40 mins

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#### Question 1

- a. What is a eutectic mixture? In your explanation, explore intermolecular forces, melting points and molecular structure.

(3 marks)

- b. What are the important information in the report writing need to be documented for safety?

(5 marks)

- c. Outline the strategies to minimise microbial contamination when solutions are formulated, manufactured, and administered.

(7 marks)

## Question 2

- a. What is comminution? Give at least two examples where comminution plays a crucial role for drug's bioavailability and therapeutic efficacy.

(3 marks)

- b. Define levigation, trituration and geometric dilution. Describe two methods for preparing an ointment including at least two techniques for integrating insoluble ingredients into the final product.

(7 marks)

- c. What volumes of ethanol 95% and distilled water should be mixed to produce 1000mL of ethanol 70%? Show the calculation in details.

(5 marks)

## Question 3

- a. Discuss stability, compatibility and storage issues for solutions, syrups and elixirs.

(6 marks)

- b. Describe the process of micellar solubilisation. Explain its application in pharmacy with suitable examples.

(6 marks)

- c. How many grams of amoxycillin are present in 100mL (250mg/5mL) of amoxycillin suspension? Show your calculation to get the answer.

(3 marks)

***END of Section B***

## Section C

### Formulations and Calculations

Total Number of Marks for this section: /30

Answer 2 (TWO) of the 3 (THREE) Formulations and Calculation Questions. Start a new answer booklet for this section. Please ensure that your name and student number have been written on the answer booklet for submission at the end of the examination.

15 (FIFTEEN) marks for each question. Suggested Time allocation for Section C: 40 mins

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#### Question 1

Consider Mistura Belladonna pro Infantibus:

Belladonna Tincture BP	30 mL
Syrup BP	200 mL
Glycerol BP	100 mL
Benzoic Acid Solution BP	70 mL
Compound Orange Spirit BP	2 mL
Purified water, freshly boiled and cooled, to	1000 mL

- a. Calculate the quantities required to prepare 80 mL of this product. Include aliquot calculations (if required) given that the glassware available accurately measures from 0.2mL to 100mL.

(8 marks)

- b. Match the role of each ingredient in terms of:

- Active ingredient
- Suspending Agent/s
- Flavouring Agent/s
- External phase
- Preservative

(7 marks)

## Question 2

- a. Consider Benzoic Acid ointment Compound “Whitfield’s ointment” APF 22.

Script for Helga Jones of 83 Erldunda St, Tiwi, NT, 0810. Helga’s Medicare number is 69008230811 07/16 and Dr Mark White of Nightcliff Medical Centre with prescriber number 8016009 wrote this script.

Helga has suffered allergic reactions to many, perfumed, over-the-counter preparations and would prefer her ointment be prepared “from scratch”. Helga is pre-diabetic and loves to garden.

Benzoic acid	6
Salicylic acid	3
Emulsifying ointment	91

Calculate the quantities required to prepare 50 g of this ointment base. What compatibility issues are present in choosing the compounding equipment with this product?

(5 Marks)

**Please turn over for Question 2b**



- b. Consider simple ointment white APF 22

Script for Ira Hawkins of 23 Wood Drive, Middle Ridge, QLD 4350. Ira's Medicare number is 41331216311 02/15 and Dr I Healy of Uniplaza Medical Centre, Kearneys Springs, 4350 with prescriber number 8016012 wrote this script.

Ira Hawkins captains the over 35 cricket team for south-west QLD currently touring the Top End. His compounding chemist usually prepares his zinc ointment for him but he couldn't make it down to Brisbane before the trip.

Wool fat	5
Hard paraffin	5
Cetostearyl alcohol	5
White soft paraffin	85

Show the calculation for 50g of this product

**NB. Keep this product to use in the next item.**

Zinc oxide ointment APF 22

Zinc oxide	15
White simple ointment	85

Calculate the quantities required for 20g.

- Explain why it is important to stir the primary product until completely cool.
- Describe the process of incorporation by geometric progression in more detail.
- Is there another way to mix the ingredients for this product? Will the final product differ as a result of different preparation processes?

(10 marks)

### Question 3

- a. Calculate the volume of the 10%(w/v) paracetamol infant drops and the 2.4%(w/v) paracetamol children's elixir to produce the 4.8%(w/v) paracetamol concentrated children's elixir to 200mL.

(5 marks)

- b. Calculate the quantities required to prepare 50g of the following ointment to supply to a customer.

Dithranol, in fine powder	0.1%
Salicylic acid	0.5%
Liquid paraffin	20.0%
In Emulsifying ointment	79.4%

(5 marks)

- c. Describe 3 (THREE) strategies to maximize the elegance of creams and ointments when incorporating insoluble powders.

(5 marks)

***END of Section C***

***END of EXAMINATION***